



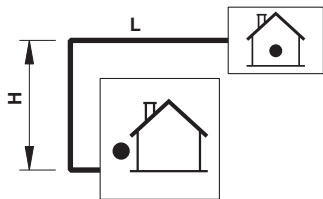
INSTALLATION MANUAL

Outdoor unit for air to water heat pump

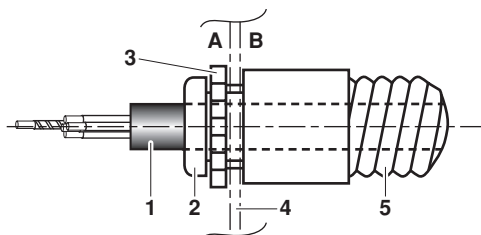
ERHQ011AAV3
ERHQ014AAV3
ERHQ016AAV3

	↖	↗	↘	↙	↕		A	B1	B2	C	D1	D2	E	L1/L2
	✓							≥100						
	✓		✓	✓			≥100	≥100		≥100				
	✓				✓			≥100				≤500	≥1000	
	✓		✓	✓	✓		≥150	≥150		≥150		≤500	≥1000	
		✓									≥500			
		✓			✓				≤500		≥500		≥1000	
	✓	✓				L1<L2		≥100			≥500			
						L2<L1		≥100			≥500			
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							H<L1				≥1000			0<L1≤1/2H
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						L1<L2		≥100			≥500			
						L2<L1		≥100			≥500			
						L1<L2	L1≤H	≥250	≤500		≥750		≥1000	0<L1≤1/2H
							H<L1				≥1000			0<L1≤1/2H
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											L2≤H			
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							H<L1				≥1250			1/2H<L1≤H
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		✓									≥1000			
		✓			✓				≤500		≥1000		≥1000	
						L1<L2		≥300			≥1000			
						L2<L1		≥250			≥1500			0<L2≤1/2H
								≥300						1/2H<L2≤H
						L1<L2	L1≤H	≥300	≤500		≥1000		≥1000	0<L1≤1/2H
							H<L1				≥1250			1/2H<L1≤H
						L2<L1	L2≤H	≥250			≥1500	≤500	≥1000	0<L2≤1/2H
							H<L2	≥300						1/2H<L2≤H

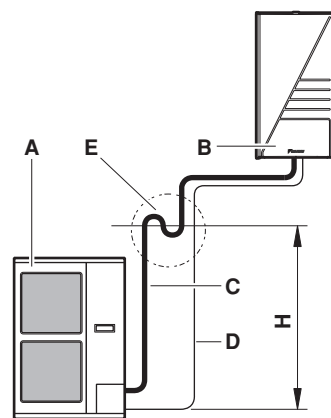
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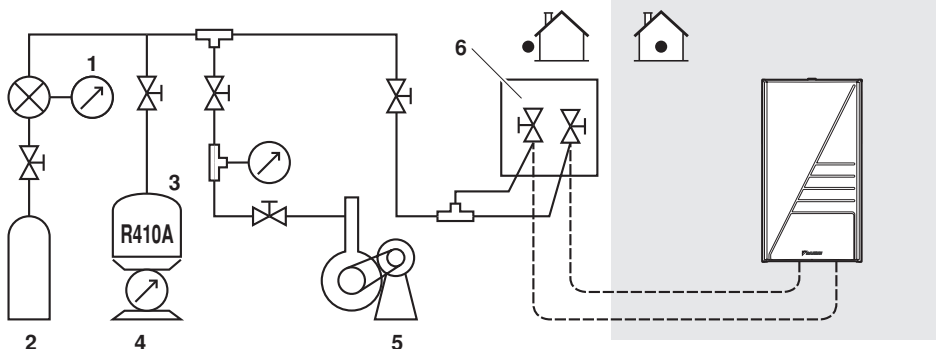
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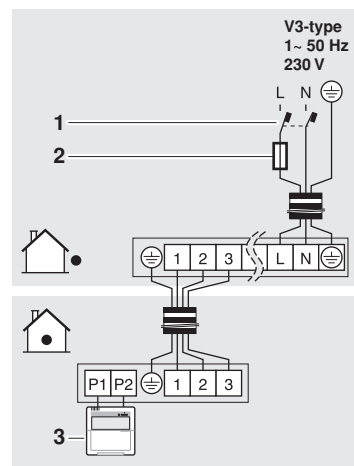
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5



6

CE - DECLARATION-OF-CONFORMITY
CE - KONFORMITÄTSPERKLÄRUNG
CE - DECLARATION-DE-CONFORMITE
CE - CONFORMITEITS/VERKLARING

CE - DECLARACION-DE-CONFORMIDAD
CE - DICHARAZIONE-DI-CONFORMITA
CE - ΔΗΛΩΣΗ ΣΥΜΜΟΡΦΩΣΗΣ

CE - DECLARAÇÃO-DE-CONFORMIDADE
CE - ЗАРЯВЛЕНИЕ-О-СООТВЕТСТВИИ
CE - OPEYDESELSERKLERING
CE - FÖRSÄKRAN-OM ÖVERENSSTÄMMELSE

CE - ERKLÆRING OM-SAMSVAR
CE - ILMOITUS-YHDENMUKAISUDESTA
CE - DEKLARACJA-ZGODNOSCI
CE - DECLARAȚIE-DE-CONFORMITATE

CE - IZJAVA O SKLADNOSTI
CE - IZJAVA-OU-SKLABENOSTI
CE - MEGFELELŐSÉG-NYILATKOZAT
CE - DEKLARACJA-ZGODNOSCI

CE - IZJAVA O SKLADNOSTI
CE - ATBILSTĪBAS-DEKLARĀCIJA
CE - VYHLÁSENIE-ZHODY
CE - UYUMLUKULUK-BİLDİRİSİ

Daikin Europe N.V.

- 01 0601 declares under its sole responsibility that the equipment to which this declaration relates:
02 0601 erklärt auf seine alleinige Verantwortung, dass die Ausrüstung für die diese Erklärung bestimmt ist:
03 0601 déclare sous sa seule responsabilité que l'équipement visé par la présente déclaration:
04 0601 verklaart hierbij op eigen exclusieve verantwoordelijkheid dat de apparatuur waarop deze verklaring betrekking heeft:
05 0601 declara bajo su única responsabilidad que el equipo al que hace referencia la declaración:
06 0601 dichiara sotto la propria responsabilità che gli apparecchi a cui è riferita questa dichiarazione:
07 0601 δηλώνει με αποκλειστική της ευθύνη ότι ο εξοπλισμός στον οποίο αναφέρεται η παρούσα δήλωση:
08 0601 declara sob sua exclusiva responsabilidade que os equipamentos a que esta declaração se refere:

ERHQ0011AAV3, ERHQ014AAV3, ERHQ016AAV3,

- 01 are in conformity with the following standard(s) or other normative document(s), provided that these are used in accordance with our instructions:
02 der/den folgenden Norm(en) oder einen anderen Normdokument oder dokumenten entsprechend entsprechen, unter der Voraussetzung, dass sie gemäß unseren Anweisungen eingesetzt werden:
03 sont conformes à l'un des normes(s) ou autre(s) document(s) normatifs(s), pour autant qu'ils soient utilisés conformément à nos instructions:
04 conformes de volgende norm(en) of één of meer andere bindende documenten zijn, op voorwaarde dat ze worden gebruikt overeenkomstig onze instructies:
05 están en conformidad con la(s) siguiente(s) norma(s) u otro(s) documento(s) normativo(s), siempre que sean utilizados de acuerdo con nuestras instrucciones:
06 sono conformi all(i) seguente(i) standard(s) o altro(i) documento(i) a carattere normativo, a patto che vengano usati in conformità alle nostre istruzioni:
07 είναι σύμφωνα με τον(α) ακόλουθο(α) πρότυπο(α) ή άλλο έγγραφο(α) κανονιστικό, υπό την προϋπόθεση ότι χρησιμοποιείται σύμφωνα με τις οδηγίες μας:
10 underlagt tillagelse af bestemmelserne i:
11 enligt villkoren i:
12 gilt i henhold til bestemmelserne i:
13 rendelkezési feltételeknek az:
14 za dovođenje u skladu sa: kas naredbe:
15 prema odredbama:
16 kövélai alól:
17 zgodnie z postanowieniami Dyrekty:
18 in urma prevederilor:

EN60335-2-40,

- 19 ob upoštevanih določih:
20 vastavati nariadenje:
21 mednarodni krajevni akt:
22 lakaitis nuostatai, patiekiamų:
23 iserogati prashas, kas noteiktas:
24 održavak uslanovenia:
25 bunun qanunlarnı uyğun olaraq:
19 ob upoštevanih določih:
20 vastavati nariadenje:
21 mednarodni krajevni akt:
22 lakaitis nuostatai, patiekiamų:
23 iserogati prashas, kas noteiktas:
24 održavak uslanovenia:
25 bunun qanunlarnı uyğun olaraq:

- 01 Note * as set out in <A> and judged positively by according to the Certificate <C>.
02 Hinweis * wie in der aufgeführt und von positiv beurteilt gemäß Zertifikat <C>.
03 Remarque * tel que défini dans <A> et évalué positivement par conformément au Certificat <C>.
04 Bemerk * zoals vermeld in <A> en positief beoordeeld door overeenkomstig Certificat <C>.
05 Nota * como se establece en <A> y es valorado positivamente por de acuerdo con el Certificado <C>.
01 Note * delimitato nel <A> e giudicato positivamente da secondo il Certificato <C>.
02 Hinweis * όπως καθορίστηκε στο <A> και κρίθηκε θετικά από το σύμφωνα με το Πρωτόκολλο <C>.
03 Remarque * tel como estabelecido em <A> e com o parecer positivo de de acordo com o Certificado <C>.
04 Bemerk * как указано в <A> и в соответствии с положительным решением согласно Сертификату <C>.
05 Nota * som antitit <A> og positivt vurderet af i henhold til Certificat <C>.

- 09 0601 заявляет, исключительно под свою ответственность, что оборудование, к которому относится настоящее заявление:
10 0601 erklærer som enesteansvarlig, at udstyret, som er omfattet af denne erklæring:
11 0601 deklarerar i egenansvar, att utrustningen som berörs av denna deklaration innebär att:
12 0601 erklærer ei fullstendig ansvar for at det utstyr som berøres av denne deklarasjon, innbefatter at:
13 0601 ilmoittaa yksinomaan omalla vastuullaan, että tänään ilmoituksen tarkoitettamat laitteet:
14 0601 prohlásuje ve své plné odpovědnosti, že zařízení, k němuž se tato prohlášení vztahuje:
15 0601 заявляє под виключно власною відповідністю, да опrema на яку се ова заява односї:
16 0601 teljes felelősség tudatában kijelenti, hogy a berendezések, melyekre e nyilatkozat vonatkozik:

- 08 estão em conformidade com a(s) seguinte(s) norma(s) ou outro(s) documento(s) normativo(s), desde que estes sejam utilizados de acordo com as nossas instruções:
09 соответствуют следующим стандартам или другим нормативным документам, при условии их использования согласно нашим инструкциям:
10 overholder følgende standard(er) eller andet/andre retningsgivende dokument(er), brudsat at disse anvendes i henhold til vores instrukser:
11 respektive utrustning är utförd i överensstämmelse med och följer följande standard(er) eller andra normgivande dokument, under förutsättning att användning sker i överensstämmelse med våra instruktioner:
12 respektive udstyr er i overensstemmelse med følgende standard(er) eller andre normgivende dokument(er), under forudsætning at disse brueses i henhold til våre instrukser:
13 nariadenia seeraaven standarden ja muiden ohjeistettien dokumenttien vaatimuksia edellytäten, että niitä käytetään ohjeidemme mukaisesti:
14 za predpoklad, že jsou využívány v souladu s našimi pokyny, odpovídají následujícím normám nebo normativním dokumentům:
15 u skladu sa slijedećim standardom(njima) ili drugim normativnim dokumentom(njima), uz uvjet da se oni koriste u skladu s našim uputama:

Low Voltage 2006/95/EC
Machinery 98/37/EC
Electromagnetic Compatibility 2004/108/EC *

- 01 Directives, as amended.
02 Direktiven, gentäglg Andringar.
03 Directives, telles que modifiées.
04 Richtlijnen, zoals gearanderd.
05 Directivas, según lo emendado.
06 Direktive, kako je izmijenjeno.
07 Önyitvált, öntek újvrtomónít.
08 Directivas, conforme alteração em.
09 Директиве, со всеми поправками.

- 21 Zariadenia * kartro je izkloeno v <A> in oceneno pozitivno s strani s strani .
22 Pastaba * kaip nustatyta ir kaip begiamia nuspreta pagal Sertifikat <C>.
23 Piedims * ka noritais <A> un atbilstoš pozitīvajam vērtējumam saskaia ar sertifikatu <C>.
24 Poznamka * ako bilo uedeno v <A> s pozitivne zistenie v skladu s osvedenim <C>.
25 Not * <A> da beifitidigi gbi ve <C> Sertifikasina góre taitindan olumu dgeitendigi gbi.

- 17 0601 deklarie na vlastnu vlgaznu odgovornost, že uzagazena, ktorych ta deklaracia dotycky:
18 0601 deklari ja poropie zodpovednost, že uzagazena, ktorych ta deklaracia dotycky:
19 0601 z svo odgovornosti javlja, da je oprema naprav, na katero se javna nadasa:
20 0601 kinnibla ona labeilku vastutusei, et kaseleva deklaratsioni alla kultuv vastutust:
21 0601 deklariirava na sosa otvorochnost, že oboroazneno, za kero so otvora tazi deklariirava:
22 0601 visika savo atsakomybe skelbia, kad janga, kuriai laikoma a deklaracija:
23 0601 ar plinu atbildibu aplicina, ka laik apakstittas elktiras, uz kuram attiecas si deklaracija:
24 0601 vyhlazuje na vlastnu zodpovednost, že zariadenie, na ktore sa vzahuje toto vyhlasenie:
25 0601 lanamen kendi sorumlulugunda olmak uzere bir bildirimi ilgili olugdu donanimimin asagidaki gibi olugunu beyan eder:

- 16 megjelölnek az alábbi szabvány(ok)nak vagy egyéb irányadó dokumentum(ok)nak, ha azokat előírás szerint használják:
17 megfelel a következő követelményeknek: 1. egyéb dokumentumok normalizációs, pod usloviem sa, zgodnie z naszymi instrukcjami:
18 sunt în conformitate cu următorul (următoare) standard(e) sau alt(e) document(e) normative, cu condiția ca acestea să fie utilizate în conformitate cu instrucțiunile noastre:
19 skladni z naslednjimi standardi in drugimi normativi, pod pogojem, da se uporabljajo v skladu z našimi navodili:
20 on vastavus järgmistele standardilega või teiste normatiivsete dokumentidega, kui need kasutatakse vastavalt meie juhendile:
21 съответстват на следните стандарти или други нормативни документи, при условие, че са използват съгласно нашите инструкции:
22 atitinka žemiau nurodytus standartus ir (arba) kitus norminius dokumentus su sąlyga, kad yra naudojami pagal mūsų nurodymus:
23 tad, ja šieči atbilstošį reikalaujiamą, abia sąlygoseim standartien atitien normatiivem dokumentiem:
24 sú vzhod s nasledujúcymi) normami) alebo inými) normatívnymi) dokumentami), za predpokladu, že sa používajú v súlade s našimi návodmi:
25 ünün, talimatlarına göre kullanılması koşuluyla aşağıdaki standartlar ve norm belirlen belgelerle uyumludur:

- 19 Direktive z vsemi spremembami.
20 Direktivd koos muudatustega.
21 Директиви, с текними изменениа.
22 Direktiivose su paprändamist.
23 Direktiivis un to papildinajumos.
24 Smernice, v platnom zneni.
25 Degisdirilmis halleriyle Yönetmelkler.
19 Direktive, med senere ændringer.
21 Direktiv, med foretagne ændringer.
12 Direktiv, med brøttate endringer.
13 Direktivej, setäsnä kuin ne ovat muuttuneita.
14 v platnem zneni.
15 Smernice, kako je izmijenjeno.
16 irányelvek és módosítások rendelkezéseit.
17 z późniejszych poprawkami.
18 Directivelor, cu amendamentele respective.

<A>	DAIKIN.TCF.021E1/07-2007
	KEMA
<C>	2024351-QUA/EMC02-4565

DAIKIN

DAIKIN EUROPE N.V.

Jiro Tomita
Director Quality Assurance
Ostend, 21st of July 2007

3PW33141-3B

Zandvoordestraat 300, B-8400 Oostende, Belgium

CONTENTS

	Page
Safety considerations	1
Before installation	2
Selecting installation site	3
Precautions on installation	4
Installation servicing space	4
Refrigerant pipe size and allowable pipe length	5
Precautions on refrigerant piping	5
Refrigerant piping	7
Leak test and vacuum drying	8
Charging refrigerant	9
Pump down operation	10
Electrical wiring work	10
Test operation	11
Disposal requirements	12
Wiring diagram	13



READ THESE INSTRUCTIONS CAREFULLY BEFORE INSTALLATION. KEEP THIS MANUAL IN A HANDY PLACE FOR FUTURE REFERENCE.

IMPROPER INSTALLATION OR ATTACHMENT OF EQUIPMENT OR ACCESSORIES COULD RESULT IN ELECTRIC SHOCK, SHORT-CIRCUIT, LEAKS, FIRE OR OTHER DAMAGE TO THE EQUIPMENT. BE SURE ONLY TO USE ACCESSORIES MADE BY DAIKIN WHICH ARE SPECIFICALLY DESIGNED FOR USE WITH THE EQUIPMENT AND HAVE THEM INSTALLED BY A PROFESSIONAL.

IF UNSURE OF INSTALLATION PROCEDURES OR USE, ALWAYS CONTACT YOUR DAIKIN DEALER FOR ADVICE AND INFORMATION.

SAFETY CONSIDERATIONS

The precautions listed here are divided into the following two types. Both cover very important topics, so be sure to follow them carefully.



WARNING

If the warning is not observed, it may cause serious casualties.



CAUTION

If the caution is not observed, it may cause injury or damage to the equipment.



WARNING

- For use of air-conditioning units in applications with temperature alarm settings it is advised to foresee a delay of 10 minutes for signalling the alarm in case the alarm temperature is exceeded. The air-conditioning unit may stop for several minutes during normal operation for "defrosting of the indoor unit" or when in "thermostat-stop" operation.
- Ask your dealer or qualified personnel to carry out installation work. Do not install the machine by yourself. Improper installation may result in water leakage, electric shocks or fire.
- Perform installation work in accordance with this installation manual. Improper installation may lead to water leakage, electric shocks or fire.
- Consult your local dealer regarding what to do in case of refrigerant leakage. When the unit is to be installed in a small room, it is necessary to take proper measures so that the amount of any leaked refrigerant does not exceed the concentration limit in the event of a leakage. Otherwise, this may lead to an accident due to oxygen depletion.
- Be sure to use only the specified accessories and parts for installation work. Failure to use the specified parts may result in water leakage, electric shocks, fire, or the unit falling.
- Install the unit on a foundation that can withstand its weight. Insufficient strength may result in the fall of equipment and causing injury.
- Carry out the specified installation work in consideration of strong winds, typhoons, or earthquakes. Improper installation work may result in accidents due to fall of equipment.
- Make certain that all electrical work is carried out by qualified personnel according to the local laws and regulations and this installation manual, using a separate circuit. Insufficient capacity of the power supply circuit or improper electrical construction may lead to electric shocks or fire.
- Make sure that all wiring is secure, using the specified wires and ensuring that external forces do not act on the terminal connections or wires. Incomplete connection or fixing may cause a fire.
- When wiring between the indoor and outdoor units, and wiring the power supply, form the wires so that the frontside panel can be securely fastened. If the frontside panel is not in place, overheat of the terminals, electric shocks or a fire may be caused.
- If refrigerant gas leaks during installation work, ventilate the area immediately. Toxic gas may be produced if refrigerant gas comes into contact with fire.
- After completing the installation work, check to make sure that there is no leakage of refrigerant gas. Toxic gas may be produced if refrigerant gas leaks into the room and comes into contact with a source of fire, such as a fan heater, stove or cooker.




WARNING

- Before touching electric terminal parts, turn off power switch.
- Live parts can be easily touched by accident. Never leave the unit unattended during installation or servicing when the service panel is removed.
- When planning to relocate former installed units, you must first recover the refrigerant after the pump down operation. Refer to chapter "Pump down operation" on page 10.
- Never directly touch any accidental leaking refrigerant. This could result in severe wounds caused by frostbite.



CAUTION

- Note for installing the outdoor unit.
In cold areas where the outside air temperature remains below or around the freezing-point for a few days, the outdoor unit's drain may freeze. If so, it is recommended to install a heater tape in order to protect drain from freezing.
- Earth the unit.
Earthing resistance should be according to national regulations
Do not connect the earth wire to gas or water pipes, lightning conductor or telephone earth wire. 
Incomplete earthing may cause electric shocks.
- Gas pipe.
Ignition or explosion may occur if the gas leaks.
- Water pipe.
Hard vinyl tubes are not effective earths.
- Lightning conductor or telephone earth wire.
Electric potential may rise abnormally if struck by a lightning bolt.
- Be sure to install an earth leakage circuit breaker.
Failure to install an earth leakage circuit breaker may cause electric shocks and fire.
- Install drain piping according to this installation manual to ensure good drainage, and insulate the pipe to prevent condensation.
Improper drain piping may cause water leakage, and make the furnitures get wet.
- Install the indoor and outdoor units, power wire and connecting wire at least 1 meter away from televisions or radios to prevent image interference or noise.
(Depending on the radio waves, a distance of 1 meter may not be sufficient to eliminate the noise.)
- Do not rinse the outdoor unit. This may cause electric shocks or fire.



CAUTION

- Do not install the unit in places such as the following:
 - Where there is mist of mineral oil, oil spray or vapour for example a kitchen.
Plastic parts may deteriorate, and cause them to fall out or water to leak.
 - Where corrosive gas, such as sulphurous acid gas, is produced.
Corrosion of copper pipes or soldered parts may cause the refrigerant to leak.
 - Where there is machinery which emits electromagnetic waves.
Electromagnetic waves may disturb the control system, and cause malfunction of the equipment.
 - Where flammable gases may leak, where carbon fiber or ignitable dust is suspended in the air or where volatile flammables, such as thinner or gasoline, are handled.
Such gases may cause a fire.
 - Where the air contains high levels of salt such as that near the ocean.
 - Where voltage fluctuates a lot, such as that in factories.
 - In vehicles or vessels.
 - Where acidic or alkaline vapour is present.

BEFORE INSTALLATION



Since maximum working pressure is 4.0 MPa or 40 bar, pipes of larger wall thickness may be required. Refer to paragraph "Selection of piping material" on page 5.

Precautions for R410A


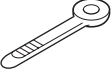
- The refrigerant requires strict cautions for keeping the system clean, dry and tight.
 - Clean and dry
Foreign materials (including mineral oils or moisture) should be prevented from getting mixed into the system.
 - Tight
Read "Precautions on refrigerant piping" on page 5 carefully and follow these procedures correctly.
- Since R410A is a mixed refrigerant, the required additional refrigerant must be charged in its liquid state. (If the refrigerant is in state of gas, its composition changes and the system will not work properly).
- The connected indoor unit must be the EKHBH/X016 unit designed exclusively for R410A.

Installation

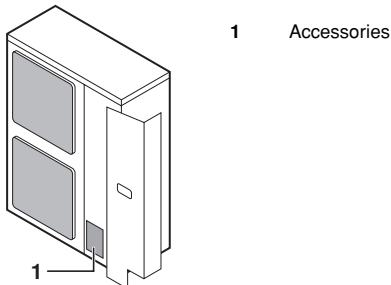
- For installation of the indoor unit, refer to the indoor unit installation manual.
- Never operate the unit without the thermistor (R3T, R4T), burning of the compressor may result.
- Be sure to confirm the model name and the serial no. of the outer (front) plates when attaching/detaching the plates to avoid mistakes.
- When closing the service panels, take care that the tightening torque does not exceed 4.1 N·m.

Accessories

- Check if the following accessories are included with the unit

Installation manual	1	
Cable tie	2	

See the figure below for the location of the accessories.



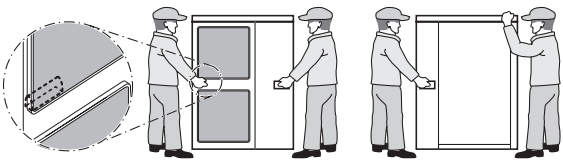
- Optional accessories for the outdoor unit:

- A bottom plate heater tape is available as optional kit.
For installation of the bottom plate heater tape kit, refer to the instruction sheet delivered with that kit.
- Drain socket.



Handling

As shown in the figure below, slowly move the unit by grabbing the left and right grips. Position your hands on the corner instead of grabbing the air inlet to avoid deforming the casing.



- To avoid injury, do not touch the air inlet or aluminium fins of the unit.

SELECTING INSTALLATION SITE



- Make sure to provide for adequate measures in order to prevent that the outdoor unit be used as a shelter by small animals.
- Small animals making contact with electrical parts can cause malfunctions, smoke or fire. Please instruct the customer to keep the area around the unit clean.

- Select an installation site where the following conditions are satisfied and that meets with your customer's approval.
 - Places which are well-ventilated.
 - Places where the unit does not bother next-door neighbours.
 - Safe places which can withstand the unit's weight and vibration and where the unit can be installed level.
 - Places where there is no possibility of flammable gas or product leak.
 - Places where servicing space can be well ensured.

- Places where the indoor and outdoor units' piping and wiring lengths come within the allowable ranges.
- Places where water leaking from the unit cannot cause damage to the location (e.g. in case of a blocked drain pipe).
- Places where the rain can be avoided as much as possible.

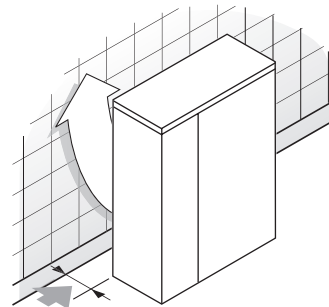
- When installing the unit in a place exposed to strong wind, pay special attention to the following.

Strong winds of 5 m/sec or more blowing against the outdoor unit's air outlet causes short circuit (suction of discharge air), and this may have the following consequences:

- Deterioration of the operational capacity.
- Frequent frost acceleration in heating operation.
- Disruption of operation due to rise of high pressure.
- When a strong wind blows continuously on the face of the unit, the fan can start rotating very fast until it breaks.

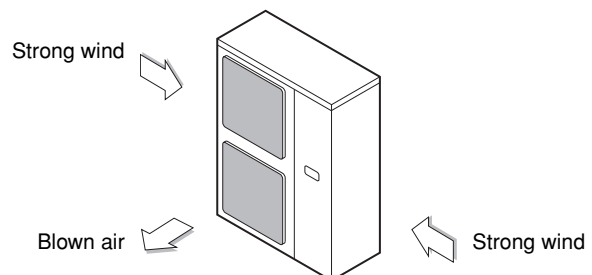
Refer to the figures for installation of this unit in a place where the wind direction can be foreseen.

- Turn the air outlet side toward the building's wall, fence or screen.

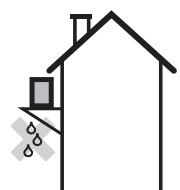


Make sure there is enough room to do the installation

- Set the outlet side at a right angle to the direction of the wind.



- Prepare a water drainage channel around the foundation, to drain waste water from around the unit.
- If the water drainage of the unit is not easy, please build up the unit on a foundation of concrete blocks, etc. (the height of the foundation should be maximum 150 mm).
- If you install the unit on a frame, please install a waterproof plate within 150 mm of the underside of the unit in order to prevent the invasion of water from the lower direction.
- When installing the unit in a place frequently exposed to snow, pay special attention to the following:
 - Elevate the foundation as high as possible.
 - Remove the rear suction grille to prevent snow from accumulating on the rear fins.
- If you install the unit on a building frame, please install a waterproof plate (within 150 mm of the underside of the unit) or use a drain kit (option) in order to avoid the drainwater dripping. (See figure).



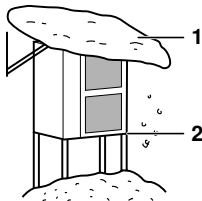
Selecting a location in cold climates



CAUTION

When operating the outdoor unit in a low outdoor ambient temperature, be sure to follow the instructions described below.

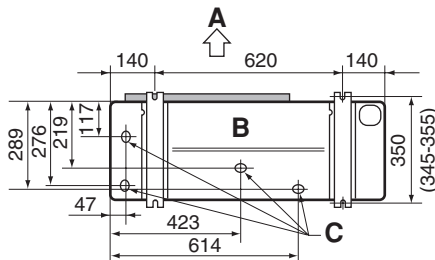
- To prevent exposure to wind, install the outdoor unit with its suction side facing the wall.
- Never install the outdoor unit at a site where the suction side may be exposed directly to wind.
- To prevent exposure to wind, install a baffle plate on the air discharge side of the outdoor unit.
- In heavy snowfall areas it is very important to select an installation site where the snow will not affect the unit. If lateral snowfall is possible, make sure that the heat exchanger coil is not affected by the snow (if necessary construct a lateral canopy).



- 1 Construct a large canopy.
- 2 Construct a pedestal. Install the unit high enough off the ground to prevent burying in snow.

PRECAUTIONS ON INSTALLATION

- Check the strength and level of the installation ground so that the unit will not cause any operating vibration or noise after installation.
- In accordance with the foundation drawing in the figure, fix the unit securely by means of the foundation bolts. (Prepare four sets of M12 foundation bolts, nuts and washers each which are available on the market.)
- It is best to screw in the foundation bolts until their length are 20 mm from the foundation surface.



- A Discharge side
B Bottom view (mm)
C Drain hole

Drain work

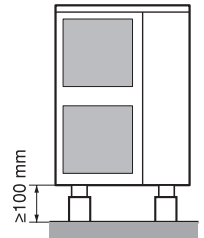
If drain work is necessary, follow the guidelines below.

- Drain kits for drainage are available as option.
- If drain work from the outdoor unit causes trouble (for example, if the drain water may splash on people) provide the drain piping using a drain socket (optional).
- If in cold areas the use of a drain hose is unavoidable for one reason or another, it is recommended to install the optional bottom plate heater tape.
- Make sure the drain works properly.

NOTE



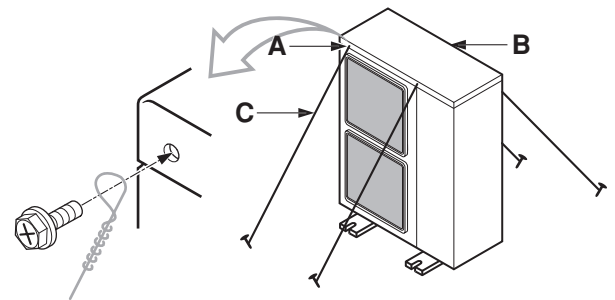
If drain holes of the outdoor unit are covered by a mounting base or by floor surface, raise the unit in order to provide a free space of more than 100 mm under the outdoor unit.



Installation method for prevention of falling over

If it is necessary to prevent the unit from falling over, install as shown in the figure.

- prepare all 4 wires as indicated in the drawing
- unscrew the top plate at the 4 locations indicated A and B
- put the screws through the nooses and screw them back tight



- A location of the 2 fixation holes on the front side of the unit
B location of the 2 fixation holes on the rear side of the unit
C wires: field supply

INSTALLATION SERVICING SPACE

The numerical figures used in the figures represent the dimensions in mm.

(Refer to "Precautions on installation" on page 4)

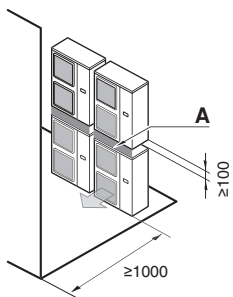
Precaution

(A) In case of non-stacked installation (See figure 1)

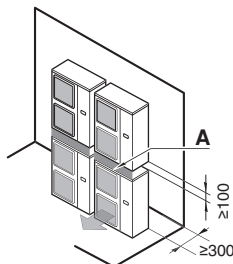
- | | | |
|---------------------------|---|--|
| ← Suction side obstacle | ✓ | Obstacle is present |
| → Discharge side obstacle | 1 | In these cases, close the bottom of the installation frame to prevent the discharged air from being bypassed |
| ← Left side obstacle | | |
| → Right side obstacle | 2 | In these cases, only 2 units can be installed. |
| ← Top side obstacle | ✗ | This situation is not allowed |

(B) In case of stacked installation

1. In case obstacles exist in front of the outlet side.



2. In case obstacles exist in front of the air inlet.

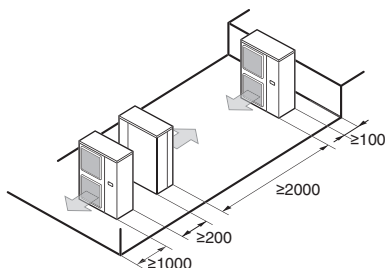


Do not stack more than one unit.

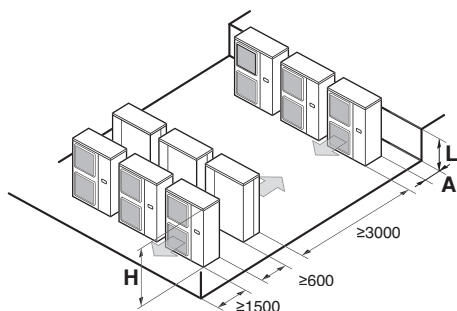
About 100 mm is required as the dimension for laying the upper outdoor unit's drain pipe. Get the portion A sealed so that air from the outlet does not bypass.

(C) In case of multiple-row installation (for roof top use, etc.)

1. In case of installing one unit per row.



2. In case of installing multiple units (2 units or more) in lateral connection per row.



Relation of dimensions of H, A and L are shown in the table below.

	L	A
L ≤ H	0 < L ≤ 1/2H	250
	1/2H < L	300
H < L	Installation impossible	

REFRIGERANT PIPE SIZE AND ALLOWABLE PIPE LENGTH



All field piping must be installed by a licensed refrigeration technician and must comply with relevant local and national regulations.



To persons in charge of piping work:

- Be sure to open the stop valve after piping installing and vacuuming is complete. (Running the system with the valve closed may break the compressor.)
- It is forbidden to discharge refrigerant into the atmosphere. Collect the refrigerant in accordance with the freon collection and destruction law.

Selection of piping material

- Construction material: phosphoric acid deoxidised seamless copper for refrigerant.
- Temper grade: use piping with temper grade in function of the pipe diameter as listed in table below.
- The pipe thickness of the refrigerant piping should comply with relevant local and national regulations. The minimal pipe thickness for R410A piping must be in accordance with the table below.

Pipe Ø	Temper grade of piping material	Minimal thickness t (mm)
9.5	O	0.80
15.9	O	1.00

O=Annealed

Refrigerant pipe size

The pipes between outdoor unit and indoor unit should have the same size as the outdoor connections.

Refrigerant pipe size (mm)	
Gas pipe	Ø15.9
Liquid pipe	Ø9.5

Allowable pipe length and height difference

See the table below concerning lengths and heights. Refer to figure 2. Assume that the longest line in the figure corresponds with the actual longest pipe, and the highest unit in the figure corresponds with the actual highest unit.

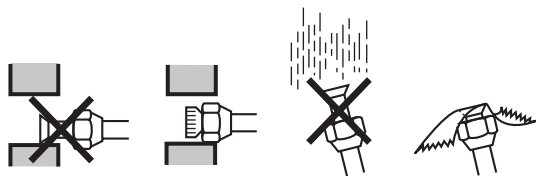
Allowable pipe length	
Maximum total one-way piping length ^(a)	
L	75 m (95 m)
Maximum height between indoor and outdoor	
H	30 m
Chargeless length	
L	≤30 m

(a) Parenthesized figure represents the equivalent length.

PRECAUTIONS ON REFRIGERANT PIPING

- Do not allow anything other than the designated refrigerant to get mixed into the freezing cycle, such as air, etc. If any refrigerant gas leaks while working on the unit, ventilate the room thoroughly right away.
- Use R410A only when adding refrigerant
Installation tools:
Make sure to use installation tools (gauge manifold charge hose, etc.) that are exclusively used for R410A installations to withstand the pressure and to prevent foreign materials (e.g. mineral oils and moisture) from mixing into the system.

- In order to prevent dirt, liquid or dust from entering the piping, cure the piping with a pinch or taping.



Place	Installation period	Protection method
Outdoor unit	More than a month	Pinch the pipe
	Less than a month	Pinch or tape the pipe
Indoor unit	Regardless of the period	

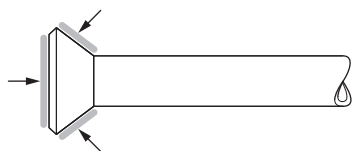
Great caution is needed when passing copper tubes through walls.

Flaring guidelines

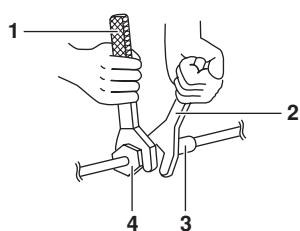
- Flares should not be re-used. New ones should be made in order to prevent leaks.
- Use a pipe cutter and flare tool suitable for the refrigerant used.
- Only use the flare nuts included with the unit. Using different flare nuts may cause the refrigerant to leak.
- Please refer to the table for flaring dimensions and tightening torques (too much tightening will result in splitting the flare).

Piping size (mm)	Tightening torque (N·m)	Flare dimensions A (mm)	Flare shape (mm)
Ø9.5	32.7~39.9	12.8~13.2	
Ø15.9	61.8~75.4	19.4~19.7	

- When connecting the flare nut, coat the flare both inside and outside with ester oil or ether oil and initially tighten 3 or 4 turns by hand before tightening firmly.



- When loosening a flare nut, always use two wrenches together. When connecting the piping, always use a spanner and torque wrench together to tighten the flare nut to prevent flare nut cracking and leaks.



- 1 Torque wrench
- 2 Spanner
- 3 Piping union
- 4 Flare nut

Not recommended, but in case of emergency

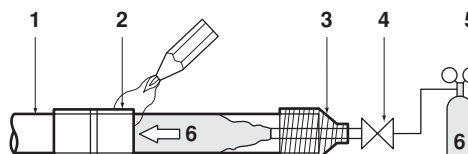
Should you be forced to connect the piping without a torque wrench, follow the following installation method:

- Tighten the flare nut using a spanner until the tightening torque suddenly increases.
- From that position further tighten the flare nut the angle listed below:

Piping size (mm)	Further tightening angle (degrees)	Recommended arm length of spanner (mm)
Ø9.5	60~90	±200
Ø15.9	30~60	±300

Brazing guidelines

- Make sure to blow through with nitrogen when brazing. Blowing through with nitrogen prevents the creation of large quantities of oxidized film on the inside of the piping. An oxidized film adversely affects valves and compressors in the refrigerating system and prevents proper operation.
- The nitrogen pressure should be set to 0.02 MPa (i.e., just enough so it can be felt on the skin) with a pressure-reducing valve.



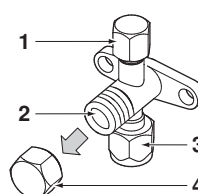
- 1 Refrigerant piping
- 2 Part to be brazed
- 3 Taping
- 4 Manual valve
- 5 Pressure-reducing valve
- 6 Nitrogen

- Do not use anti-oxidants when brazing the pipe joints. Residue can clog pipes and break equipment.
- Do not use flux when brazing copper-to-copper refrigerant piping. Use phosphor copper brazing filler alloy (BCuP) which does not require flux.
- Flux has an extremely harmful influence on refrigerant piping systems. For instance, if chlorine based flux is used, it will cause pipe corrosion or, in particular, if the flux contains fluorine, it will deteriorate the refrigerant oil.

Stop valve operation

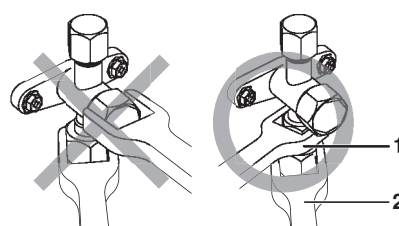
Cautions on handling the stop valve

- Make sure to keep both stop valves open during operation.
- The figure below shows the name of each part required in handling the stop valve.



- 1 Service port and service port cap
- 2 Valve stem
- 3 Field piping connection
- 4 Stem cap

- The stop valve is factory closed.
- Do not apply excessive force to the valve stem. Doing so may break the valve body.
- Since the stop valve mounting plate may be deformed if only a torque wrench is used to loosen or tighten the flare nut, always make sure to secure the stop valve with a spanner, then loosen or tighten the flare nut with a torque wrench. Do not place the spanner on the stem cap, as this could cause a refrigerant leak.



- 1 Spanner
- 2 Torque wrench

- When it is expected that the operating pressure will be low (for example, when cooling will be performed while the outside air temperature is low), sufficiently seal the flare nut in the stop valve on the gas line with silicon sealant to prevent freezing.



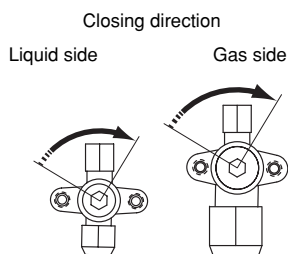
Opening/closing the stop valve

Opening the stop valve

- Remove the valve cover.
- Insert a hexagon wrench (liquid side: 4 mm/gas side: 6 mm) into the valve stem and turn the valve stem counterclockwise.
- When the valve stem cannot be turned any further, stop turning. The valve is now open.

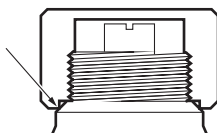
Closing the stop valve

- Remove the valve cover.
- Insert a hexagon wrench (liquid side: 4 mm/gas side: 6 mm) into the valve stem and turn the valve stem clockwise.
- When the valve stem cannot be turned any further, stop turning. The valve is now closed.



Cautions on handling the stem cap

- The stem cap is sealed where indicated by the arrow. Take care not to damage it.
- After handling the stop valve, make sure to tighten the stem cap securely. For the tightening torque, refer to the table below.
- Check for refrigerant leaks after tightening the stem cap.



Cautions on handling the service port

- Always use a charge hose equipped with a valve depressor pin, since the service port is a Schrader type valve.
- After handling the service port, make sure to tighten the service port cap securely. For the tightening torque, refer to the table below.
- Check for refrigerant leaks after tightening the service port cap.

Tightening torques

Item	Tightening torque (N·m)
Stem cap, liquid side	13.5~16.5
Stem cap, gas side	22.5~27.5
Service port cap	11.5~13.9

REFRIGERANT PIPING

- Field pipes can be installed in four directions.

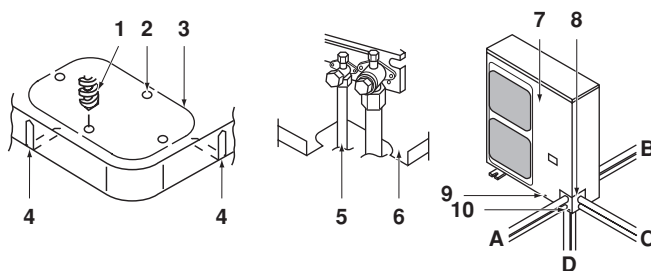


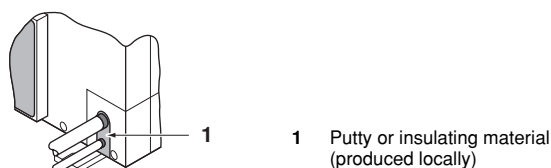
Figure - Field pipes in four directions

- Drill
- Centre area around knockout hole
- Knockout hole
- Slit
- Connecting pipe
- Bottom frame
- Front plate
- Pipe outlet plate
- Screw front plate
- Pipe outlet plate screw
- Forward
- Backward
- Sideways
- Downward

- Cutting out the two slits makes it possible to install as shown in the figure "Field pipes in four directions". (Use a metal saw to cut out the slits.)
- To install the connecting pipe to the unit in a downward direction, make a knockout hole by penetrating the centre area around the knockout hole using a Ø6 mm drill. (See figure "Field pipes in four directions".)
- After knocking out the knock-out, it is recommended to apply repair paint to the edge and the surrounding end surfaces to prevent rusting.

Preventing foreign objects from entering

Plug the pipe through-holes with putty or insulating material (procured locally) to stop up all gaps, as shown in the figure.




Insects or small animals entering the outdoor unit may cause a short circuit in the electrical box.

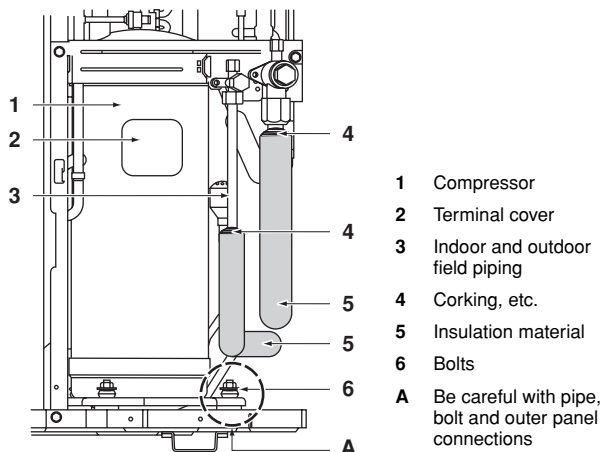
Precautions when connecting field piping and regarding insulation

- Be careful not to let the indoor and outdoor piping come into contact with the compressor terminal cover. If the liquid-side piping insulation might come into contact with it, adjust the height as shown in the figure below. Also, make sure the field piping does not touch the bolts or outer panels of the compressor.
- When the outdoor unit is installed above the indoor unit the following can occur:
The condensated water on the stop valve can move to the indoor unit. To avoid this, please cover the stop valve with sealing material.

- If the temperature is higher than 30°C and the humidity is higher than RH 80%, then the thickness of the sealing materials should be at least 20 mm in order to avoid condensation on the surface of the sealing.
- Be sure to insulate the liquid and gas-side field piping.

 Any exposed piping may cause condensation or burns if touched.

(The highest temperature that the gas-side piping can reach is around 120°C, so be sure to use insulating material which is very resistant.)



Cautions for necessity of a trap

Since there is fear of the oil held inside the riser piping flowing back into the compressor when stopped and causing liquid compression phenomenon, or cases of deterioration of oil return, it will be necessary to provide a trap at an appropriate place in the riser gas piping.

- Trap installation spacing. (See figure 4)
 - A Outdoor unit
 - B Indoor unit
 - C Gas piping
 - D Liquid piping
 - E Oiltrap
 - H Install trap at each difference in height of 10 m.
- A trap is not necessary when the outdoor unit is installed in a higher position than the indoor unit.

LEAK TEST AND VACUUM DRYING

When all piping work is complete and the outdoor unit is connected to the indoor unit, it is necessary to (a) check for any leakages in the refrigerant piping and (b) to perform vacuum drying to remove all moisture in the refrigerant piping.

If there is a possibility of moisture being present in the refrigerant piping (for example, rainwater may have entered the piping), first carry out the vacuum drying procedure below until all moisture has been removed.

General guidelines

- All piping inside the unit has been factory tested for leaks.
- Use a 2-stage vacuum pump with a non-return valve which can evacuate to a gauge pressure of -100.7 kPa (5 Torr absolute, -755 mm Hg).
- Connect the vacuum pump to **both** the service port of the gas stop valve and the liquid stop valve to increase efficiency.



- Do not purge the air with refrigerants. Use a vacuum pump to evacuate the installation. No additional refrigerant is provided for air purging.
- Make sure that the gas stop valve and liquid stop valve are firmly closed before performing the leak test or vacuum drying.

Setup

(See figure 5)

- 1 Pressure gauge
- 2 Nitrogen
- 3 Refrigerant
- 4 Weighing machine
- 5 Vacuum pump
- 6 Stop valve

Leak test

The leak test must satisfy specification EN 378-2.

- 1 Vacuum leak test
 - 1.1 Evacuate the system from the liquid and gas piping to -100.7 kPa (5 Torr).
 - 1.2 Once reached, turn off the vacuum pump and check that the pressure does not rise for at least 1 minute.
 - 1.3 Should the pressure rise, the system may either contain moisture (see vacuum drying below) or have leaks.
- 2 Pressure leak test
 - 2.1 Break the vacuum by pressurizing with nitrogen gas to a minimum gauge pressure of 0.2 MPa (2 bar). Never set the gauge pressure higher than the maximum operation pressure of the unit, i.e. 4.0 MPa (40 bar).
 - 2.2 Test for leaks by applying a bubble test solution to all piping connections.



Make sure to use a recommended bubble test solution from your wholesaler.

Do not use soap water, which may cause cracking of flare nuts (soap water may contain salt, which absorbs moisture that will freeze when the piping gets cold), and/or lead to corrosion of flared joints (soap water may contain ammonia which causes a corrosive effect between the brass flare nut and the copper flare).

- 2.3 Discharge all nitrogen gas.

Vacuum drying

To remove all moisture from the system, proceed as follows:

1. Evacuate the system for at least 2 hours to a target vacuum of -100.7 kPa.
2. Check that, with the vacuum pump turned off, the target vacuum is maintained for at least 1 hour.
3. Should you fail to reach the target vacuum within 2 hours or maintain the vacuum for 1 hour, the system may contain too much moisture.
4. In that case, break the vacuum by pressurizing with nitrogen gas to a gauge pressure of 0.05 MPa (0.5 bar) and repeat steps 1 to 3 until all moisture has been removed.
5. The stop valves can now be opened, and/or additional refrigerant can be charged (see "Charging refrigerant" on page 9).



After opening the stop valve, it is possible that the pressure in the refrigerant piping does not rise. This might be caused by e.g. the closed state of the expansion valve in the outdoor unit circuit, but does not present any problem for correct operation of the unit.

CHARGING REFRIGERANT

Important information regarding the refrigerant used

This product contains fluorinated greenhouse gases covered by the Kyoto Protocol. Do not vent gases into the atmosphere.

Refrigerant type: R410A

GWP⁽¹⁾ value: 1975

⁽¹⁾ GWP = global warming potential

Please fill in with indelible ink,

- ① the factory refrigerant charge of the product,
- ② the additional refrigerant amount charged in the field and
- ①+② the total refrigerant charge

on the refrigerant charge label supplied with the product.

The filled out label must be adhered in the proximity of the product charging port (e.g. onto the inside of the service cover).

Contains fluorinated greenhouse gases covered by the Kyoto Protocol

R410A

① = kg

② = kg

①+② = kg

1 Factory refrigerant charge of the product: see unit name plate

2 Additional refrigerant amount charged in the field

3 Total refrigerant charge

4 Contains fluorinated greenhouse gases covered by the Kyoto Protocol

5 Outdoor unit

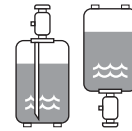
6 Refrigerant cylinder and manifold for charging

Precautions and general guidelines

- When servicing the unit requires the refrigerant system to be opened, treatment and evacuation of refrigerant must be done in accordance with relevant local and national legislation.
 - Refrigerant can not be charged until field wiring has been completed.
 - Refrigerant may only be charged after performing the leak test and vacuum drying (see "[Leak test and vacuum drying](#)" on page 8).
 - When charging a system, care shall be taken that its maximum permissible charge is never exceeded, in view of the danger of liquid hammer.
 - Charging with an unsuitable substance may cause explosions and accidents, so always ensure that the appropriate refrigerant (R410A) is charged.
 - Refrigerant cylinders shall be opened slowly.
 - Always use protective gloves and protect your eyes when charging refrigerant.
 - When the power is on, please close the front panel when leaving the unit unattended.
-
- This unit requires additional charging of refrigerant according to the length of refrigerant piping connected at the site.
 - Make sure to charge the refrigerant in liquid state to the liquid pipe. Since R410A is a mixed refrigerant, its composition changes if charged in its gaseous state and normal system operation would then no longer be assured.

- Before charging, check whether the refrigerant cylinder has a syphon attached or not and position the cylinder accordingly.

Filling using a cylinder with a siphon attached
Charge the liquid refrigerant with the cylinder in upright position.



Filling using a cylinder without a siphon attached
Charge the liquid refrigerant with the cylinder in up-side-down position.

Calculating the additional refrigerant charge



Piping length is the one way length of gas or liquid piping whichever is the longest.

It is not necessary to charge additionally if the piping length is under 30 m.

However, if the piping length is under 5 m, a complete recharging of the unit is required. Refer to "[Complete recharging](#)" on page 9.

If the piping length is over 30 m please determine the additional amount of refrigerant to be charged using the table below.

Table 1: Additional charging of refrigerant <unit: kg>

Refrigerant piping length									
3-5 m	5-10 m	10-15 m	15-20 m	20-25 m	25-30 m	30-35 m	35-40 m	40-50 m	50-60 m
(a)	(b)					0.5	0.5	1.0	1.5

(a) Recharge required, refer to "[Complete recharging](#)" on page 9

(b) Additional charge not required

Complete recharging



Before recharging, make sure to execute vacuum drying of the internal piping of the unit as well. To do so, use the internal service port of the unit. Do NOT use the service ports located on the stop valve (see "[Stop valve operation](#)" on page 6), since vacuum drying can not be performed properly from these ports.

Outdoor units have 1 port on the piping. It is between the heat exchanger and the 4-way valve.

In case complete recharging is required (after a leak, etc.), refer to the table below to determine the necessary amount of refrigerant.

Table 2: Total charging amount <unit: kg>

Refrigerant piping length									
3-5 m	5-10 m	10-15 m	15-20 m	20-25 m	20-30 m	30-35 m	35-40 m	40-50 m	50-60 m
2.7	2.7	3.2		3.7		4.2		4.7	5.2

PUMP DOWN OPERATION

This unit is equipped with an automatic pump down operation which will collect all refrigerant from the field piping and indoor unit in the outdoor unit. To protect the environment, make sure to perform the following pump down operation when relocating or disposing of the unit.



The outdoor unit is equipped with a low pressure switch or a low pressure sensor to protect the compressor by switching it off. Never short-circuit the low pressure switch during pump down operation!

1. Turn on the main power supply switch.
2. Make sure the liquid stop valve and the gas stop valve are open (see "Stop valve operation" on page 6).
3. Press the pump down button (BS4) on the PCB of the outdoor unit for at least 8 seconds.
4. The compressor and outdoor unit fan will start operating automatically.
5. Once operation stops (after 3 to 5 minutes), close the liquid stop valve and the gas stop valve.
6. The pump down operation is now finished. The remote controller may display "U4" and the indoor pump may continue operating for about 30 seconds. This is not a malfunction. Even when the ON button on the remote controller is pressed, the unit will not start to operate. To restart operation of the unit turn off the main power supply switch and turn it on again.
7. Turn off the main power supply switch.



Make sure to re-open both stop valves before restarting operation of the unit.

ELECTRICAL WIRING WORK



- All wiring must be performed by an authorized electrician.
- All components procured on the site and all electric construction should comply with the applicable local and national codes.
- High voltage
To avoid electrical shock, make sure to disconnect the power supply 1 minute or more before servicing the electrical parts. Even after 1 minute, always measure the voltage at the terminals of main circuit capacitors or electrical parts and, before touching, make sure that those voltages are 50 V DC or less.



To persons in charge of electrical wiring work:

Do not operate the unit until the refrigerant piping is complete. (Running it before the piping is ready will break the compressor.)

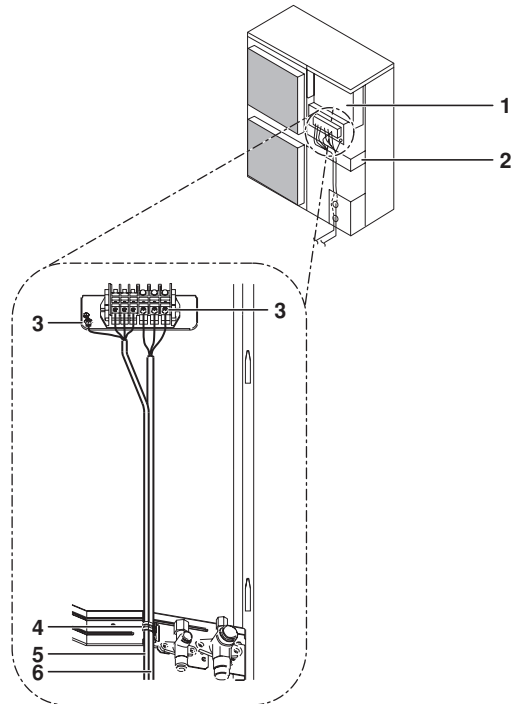
Precautions on electrical wiring work

- Before obtaining access to terminal devices, all supply circuits must be interrupted.
- Use only copper wires.
- The wiring between the indoor unit and outdoor unit must be for 230 V.
- A main switch or other means for disconnection, having a contact separation in all poles, must be incorporated in the fixed wiring in accordance with relevant local and national legislation. Do not turn on the main switch until all the wiring is completed.
- Never squeeze bundled cables into a unit.
- Fix cables so that cables do not make contact with the pipes (especially on high pressure side).

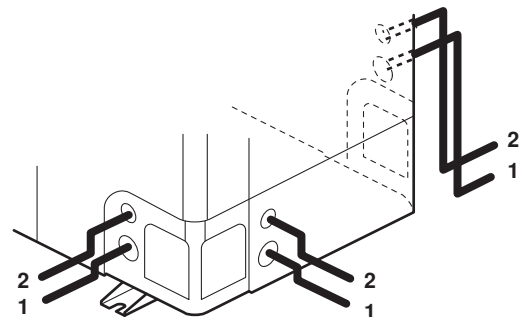
- Secure the electrical wiring with cable ties as shown in the figure below so that it does not come in contact with the piping, particularly on the high-pressure side. Make sure no external pressure is applied to the terminal connectors.
- When installing the earth leakage circuit breaker make sure that it is compatible with the inverter (resistant to high frequency electrical noise) to avoid unnecessary opening of the earth leakage circuit breaker.

Secure the wiring in the order shown below.

1. Secure the earth wire to the stop valve attachment plate so that it does not slide.
 2. Secure the earth wire to the stop valve attachment plate one more time along with the electric wiring and the inter-unit wiring.
- Lay the electrical wiring so that the front cover does not rise up when doing wiring work and attach the front cover securely.



- 1 Switch box
- 2 Stop valve mounting plate
- 3 Earth
- 4 Cable tie
- 5 Wiring between units
- 6 Power supply and earth wiring



- 1 Power supply and earth wiring
- 2 Wiring between unit

- When cables are routed from the unit, a protection sleeve for the conduits (PG-insertions) can be inserted at the knock-out hole. (See figure 3)

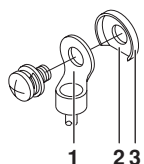
- 1 Wire
- 2 Bush
- 3 Nut
- 4 Frame
- 5 Hose
- A Inside
- B Outside

When you do not use a wire conduit, be sure to protect the wires with vinyl tubes to prevent the edge of the knock-out hole from cutting the wires.

- Follow the electric wiring diagram for electrical wiring works.
- Form the wires and fix the cover firmly so that the cover may be fit in properly.

Precautions on wiring of power supply and inter-unit wiring

- Use a round crimp-style terminal for connection to the power supply terminal board. In case it cannot be used due to unavoidable reasons, be sure to observe the following instruction.



- 1 Round pressure terminal
- 2 Cut out section
- 3 Cup washer

- Do not connect wires of different gauge to the same power supply terminal. (Looseness in the connection may cause overheating.)
- When connecting wires of the same gauge, connect them according to the below figure.



- Use the correct screwdriver to tighten the terminal screws. Small screwdrivers can damage the screw head and prevent appropriate tightening.
- Over-tightening the terminal screws can damage the screws.
- See the table below for tightening torques for the terminal screws.

Tightening torque (N·m)	
M4 (X1M)	1.2~1.8
M5 (X1M)	2.0~3.0
M5 (EARTH)	3.0~4.0

- Refer to the installation manual attached to the indoor unit for wiring of indoor unit, etc.
 - Attach an earth leakage circuit breaker and fuse to the power supply line. (See figure 6)
- 1 Earth leakage circuit breaker
 - 2 Fuse
 - 3 Remote controller

- In wiring, make certain that prescribed wires are used, carry out complete connections, and fix the wires so that outside forces are not applied to the terminals.

Specifications of standard wiring components

ERHQ011~016AAV3	
Minimum circuit amps (MCA) ^(a)	28.2
Recommended field fuse	32 A
Wire type ^(b)	H05VV-U3G
Size	Wiring size must comply with the applicable local and national code
Wire type of wiring between the units	H05VV-U4G2.5

(a) Stated values are maximum values (see electrical data of combination with indoor unit for exact values).

(b) Only in protected pipes, use H07RN-F when protected pipes are not used.



The earth leakage circuit breaker must be a high-speed type breaker of 30 mA (<0.1 s).

Equipment complying with EN/IEC 61000-3-12⁽¹⁾

TEST OPERATION



WARNING

Live parts can be easily touched by accident.

Never leave the unit unattended during installation or servicing when the service panel is removed.

NOTE



Note that during the first running period of the unit, required power input may be higher than stated on the nameplate of the unit. This phenomenon originates from the compressor that needs elapse of a 50 hours run in period before reaching smooth operation and stable power consumption.

Pre-run checks

Items to check	
Electrical wiring Inter-unit wiring Earth wire	<ul style="list-style-type: none"> Is the wiring as mentioned on the wiring diagram? Make sure no wiring has been forgotten and that there are no missing phases or reverse phases. Is the unit properly earthed? Is the wiring between units connected in series correct? Are any of the wiring attachment screws loose? Is the insulation resistance at least 1 MΩ? <ul style="list-style-type: none"> Use a 500 V mega-tester when measuring insulation. Do not use a mega-tester for low-voltage circuits.
Refrigerant piping	<ul style="list-style-type: none"> Is the size of the piping appropriate? Is the insulation material for the piping attached securely? Are both the liquid and gas pipes insulated? Are the stop valves for both the liquid side and the gas side open?
Extra refrigerant	<ul style="list-style-type: none"> Did you write down the extra refrigerant and the refrigerant piping length?

- Be sure to perform a test run.
- Be sure to fully open the liquid-side and gas-side stop valves. If you operate the unit with stop valves closed, the compressor will break down.
- Be sure to execute the first test run of the installation in cooling mode operation.
- Never leave the unit unattended with an open front panel during test run.

Test run

Carry out the test run in accordance with the indoor installation manual to ensure that all functions and parts are working properly.

(1) European/International Technical Standard setting the limits for harmonic currents produced by equipment connected to public low-voltage systems with input current >16 A and ≤75 A per phase.

DISPOSAL REQUIREMENTS

Dismantling of the unit, treatment of the refrigerant, of oil and of other parts must be done in accordance with relevant local and national legislation.

NOTES

This image shows a full page of blank graph paper. The grid consists of small, uniform squares formed by thin, light gray lines. There are no margins, text, or other markings on the page.

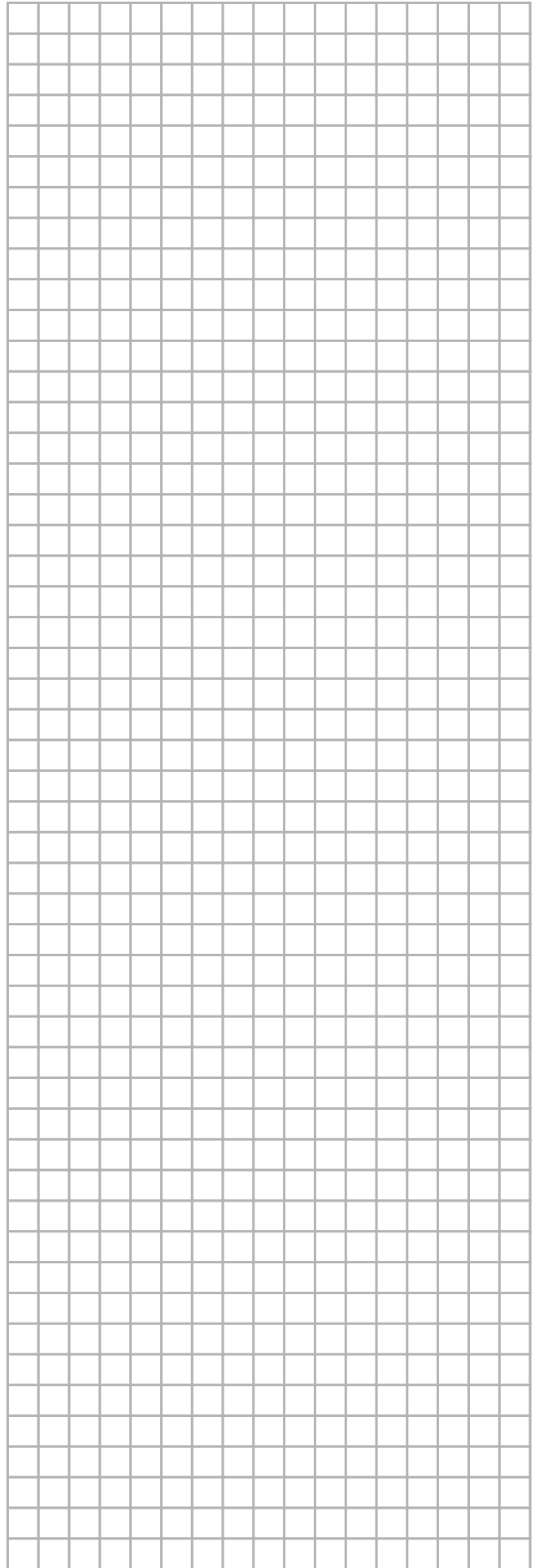
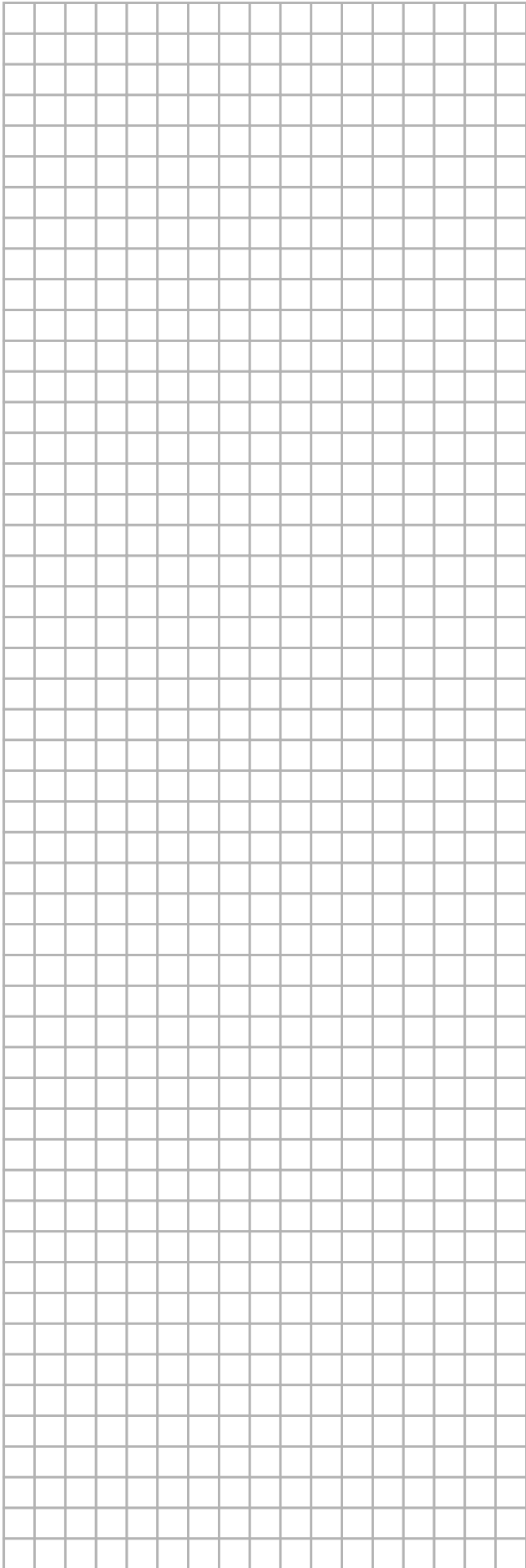
WIRING DIAGRAM

○	: Wire clamp	BLK	: Black	RED	: Red
□□	: Terminal strip	GRN	: Green	WHT	: White
⊞	: Connector	BRN	: Brown	YLW	: Yellow
— —	: Relay connector	BLU	: Blue		
— ■ ■ ■ —	: Field wiring	ORG	: Orange		

- NOTE 1 This wiring diagram only applies to the outdoor unit
- NOTE 4 Refer to the option manual for connecting wiring to X6A
- NOTE 5 Refer to the 'wiring diagram sticker' (on back of front panel) on how to use BS1~BS4 and DS1 switch
- NOTE 6 Do not operate the unit by short-circuiting protection device S1PH
- NOTE 8 Confirm the method of setting the selector switches (DS1) by service manual. Factory setting of all switches: 'OFF'

A1P~A4P.....	Printed circuit board	R3T	Thermistor (suction pipe)
BS1~BS4.....	Push button switch	R4T	Thermistor (heat exchanger)
C1~C4	Capacitor	R5T	Thermistor (heat exchanger middle)
DS1	DIP switch	R6T	Thermistor (liquid)
E1HC.....	Crankcase heater	R10T.....	Thermistor (fin)
F1U~F6U.....	Fuse	RC	Signal receiver circuit
HAP (A1P).....	Service monitor (green)	S1NPH.....	Pressure sensor (high)
H1P~H7P (A2P).....	Service monitor (orange)	S1PH	Pressure switch (high)
K1R	Magnetic relay (Y1S)	TC.....	Signal transmission circuit
K4R	Magnetic relay (E1HC)	V1R.....	Power module
K10R•K11R	Magnetic relay	V2R•V3R	Diode module
L1R.....	Reactor	V1T	Insulated gate bipolar transistor
M1C.....	Motor (compressor)	X6A.....	Connector (option)
M1F	Motor (fan) (upper)	X1M	Terminal strip
M2F	Motor (fan) (lower)	Y1E	Expansion valve
PS	Switching power supply	Y1S.....	4 way valve
Q1DI.....	Earth leakage circuit breaker (field supply)	Z1C~Z3C.....	Noise filter
R1•R2.....	Resistor	Z1F~Z4F.....	Noise filter
R1T	Thermistor (air)		

NOTES





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